Installation Innovation: What's Next?

Since the release of the National Defense Strategy in February 2018, we have revised our priorities to ensure that our installations, the platforms from which we generate and project naval power, are resilient to an ever-growing range of threats. The innovations we are pursuing in future installation planning as well as assessments of military value will incorporate our risk assessments of resilience.

The NDS outlines two imperatives for installation resilience:

1) **The homeland is no longer a sanctuary.** America is a target from enemies seeking to attack our citizens, our infrastructure, and to use political and information subversion. During conflict, we must anticipate attacks against our military bases at home.

2) **Today, every domain is contested - air, land, sea, space, and cyberspace.**

We view the threats challenging installation resilience as multi-faceted, extending across domains. We mitigate these risks amidst competing Department priorities through a comprehensive mission assurance evaluation for each critical facility to enhance the readiness and lethality of naval power to defend America's interests anytime, anywhere.

As we look to innovation in the bases of the future, we define installation resilience as the ability of naval platforms around the world to accomplish their missions despite the actions by adversaries or other events to deny, disrupt, exploit, or destroy our bases. We continually assess mission resiliency in an increasingly complex security environment defined by rapid technological challenges. Many vulnerabilities we must address today did not exist a decade or even five years ago. While concerns of installation resilience have, in the past, focused on natural events, the growth and range of adversary threats today represent more complex challenges. We are tackling these challenges holistically across six broad categories: contingency, energy and water, data, control systems cybersecurity, physical security, and environmental resilience. We continue to make difficult choices to prioritize requirements to field lethal and resilient naval forces capable of defeating any threat. In addressing these requirements, we rely on our mission assurance planning, construction and sustainment processes, rather than as a separate resilience program.

The Department's ability to protect our Nation's interests and those of our allies around the globe requires the resilience of our main operating bases to improve - the survivability of expeditionary bases and cooperative security locations are equally important. There is significant long-term risk to installation resilience from the exertion of political will to limit access to military bases and on ranges. The NDS addresses this imperative by prioritizing the strengthening of our alliances and attracting new partners as crucial to provide a resilient, asymmetric strategic advantage.

This concern is particularly acute overseas as adversaries employ various forms of coercion, activism, or economic levers to influence host nations or allies to limit cooperative security and access to ports, facilities, airfields and other infrastructure. The Department must remain engaged in a series of innovative initiatives to sustain worldwide access to infrastructure critical for to protect open sea lanes and other national objectives for our country and our allies.

Our adversaries have the ability to strike our large concentrations of forces around the world. In response, we must prioritize authorities and resources needed to transition from centralized, soft infrastructure to smaller, dispersed, resilient basing. We have initiatives underway to develop new locations within the Europe and the Indo-Pacific for the placement of forces. We will need to quickly construct facilities to support rapid force dispersal and protection.

We must also innovatively address resilient and agile logistics to include access to fuel around the world and on future battlefields. We have prioritized facility requirements for prepositioned forward fuel, stocks, and munitions to ensure sustainment in a contested environment.

In the energy domain, revolutionary technological changes such as artificial intelligence, robotics, autonomous systems, advanced telecommunications and additive manufacturing have ONE common critical enabler – electricity. In the near future, we will also NEED MORE electricity to power new generations of vehicles, sensors, cyber forces, and directed energy weapons. Our adversaries are already seeking to counter these superior technologies asymmetrically, with cheap methods to deny, disrupt or attack our energy supply and distribution systems. Our infrastructure is being tested and probed today; cyber threats to our electrical grid are real and growing. Energy resilience depends on the flexibility to counter these threats by using all fuel sources effectively and efficiently to meet critical mission priorities. We have reached out to local utilities and the private sector to collaborate on initiatives to improve energy management while reducing vulnerabilities outside the fence lines of our bases.

We are also collaborating with industry and defense communities on the national development of small cell technology and a Fifth Generation (5G) network. Our goal is to reduce the threat of foreign cyberattacks to this new infrastructure. We know the quality and speed of the decisions, enabled by software and data through wireless networks will drive both an economic and military edge for our country. As such, these networks must be resilient and secure. The military value for the "base of the future" will depend on the availability and relative security of 5G infrastructure. As such, States and local communities having an economic stake in national defense must take an active role now during permitting processes to develop local 5G infrastructure with minimal security risks. In addition, with the proliferation of artificial intelligence assets, the data we transmit across all our networks, which have historically been unclassified in open domains, has now been weaponized through data analytics. We need not look any further than the ability to use a military member's i-watch and fit-bot location and physical exertion data to determine military unit movements. We are in the process of a complete review of data classifications which drive a huge increase in the need for secure communication networks in special compartmentalized information facilities (SCIFS).

In addition, the rapidly advancing technology to enable smart cities and industries has outrun the security needed to protect our lives, privacy, and resources. Recent intelligence and government warnings have highlighted control system cybersecurity as a critical national vulnerability. Cyber-attacks targeting building systems can result in the takedown of key weapon systems, as well as threatening privacy, safety, and lives of our citizens on our installations, in our homes, in our cars, and in public places. Responding to these challenges, we are dedicating resources to improve our control system resilience starting with inventories, cyber-hygiene, and monitoring. Ultimately control system security will require a national action plan. Responding to emerging threats to the physical security of our installations is critically important to ensure continuity of our mission while protecting our people. In addition to well established anti-terrorism and force

protection standards, the Department is leveraging rapidly advancing physical security technologies to counter unique and emerging threats such as drones attacks and foreign surveillance.

We also face an array of challenges for installations and ranges to be environmentally resilient. We consider the impacts of natural disasters, land subsidence, wildfires, droughts, and incompatible development as issues affecting our ability to train, test, and operate. Most recently, we are recovering and restoring critical test capabilities at Naval Air Weapons Station China Lake in the aftermath of earthquakes that struck California in July. In our review of damage, it is starkly clear those modern facilities designed with seismic features fared far better than older facilities. It is difficult to predict where the next hurricane, tornado, or earthquake will hit. We must continue to invest, innovatively in the modernization and repair of our facilities and infrastructure to build resilience, as opposed to abandoning our critical capabilities.

Many environmental resilience challenges require collaboration with communities, States, federal agencies, and industry leaders to develop regional plans to protect military capabilities. As an example, we are working with the State of California to ensure that renewable energy development off shore and on land will not negatively impact critical DOD training and test ranges. The Administration's plan to develop all energy sources is being carried out with innovative agreement to ensure the long term resilience of ranges to support future weapon system development.

These threats require holistic solutions, not focusing on just one issue. We will also require innovation with our defense community partners to develop and successfully carry out these solutions. We have taken an important step in this drive for innovation by standing up an Acquisition Modernization Office (AMO) within Naval Facilities Command to consolidate our activities to acquire services and construction through unique asset management authorities provided to us by Congress. As a result, we plan to offer the AMO capabilities to our CNIC regions in order to expand our use of intergovernmental support agreements, enhanced use leases, utilities privatization, energy authorities, other transactional authorities, and yes even the Defense Community Infrastructure Program for critical off-base enhancements. We cannot continue to see critical projects to reduce our mission risk being deferred by flat military construction or other facility modernization account funding.

One of the Navy's most aggressive asset management initiatives will be presented here at ADC IIF on Tuesday morning at 730 in this main hall. The Navy is in the process of working with the San Diego Association of Governments to exchange 72 acres in downtown San Diego to obtain the construction of new facilities for the Navy's premier research laboratory known as NAVWAR. The Navy is proud of this community partnership which will allow the city to construct a multi-billion dollar regional transportation center to meet future growth and sustainability goals.

So yes, as our session notes, it's a changing world where threats from great powers and regional conflicts are driving our nation's military strategy. At the same time, our own fiscal realities and the long list of competing demands are requiring new approaches to free up resources and allow investment back into priorities. At the heart of the solutions and strategies to these complex challenges is innovation. We hope to be able to set the stage for the rest of this conference on what innovations are happening now and why it is so important for all us to accelerate these efforts in order to make us stronger.